

Forestry

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OF THE

# DIRECTOR OF FORESTRY

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OF THE

## PHILIPPINE ISLANDS

FOR THE PERIOD

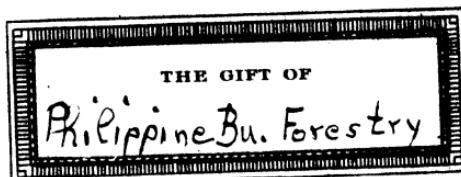
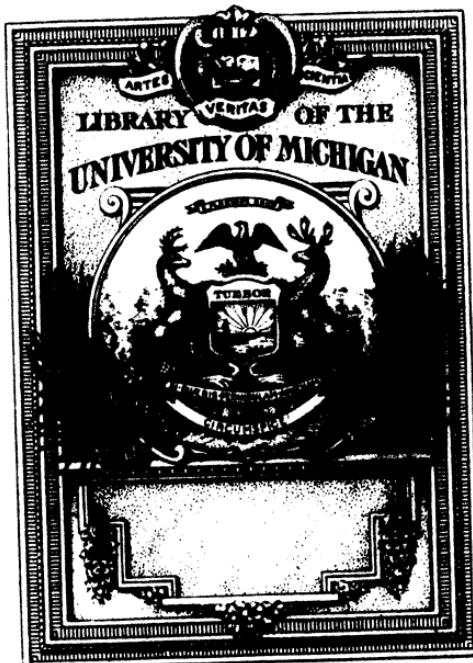
JULY 1, 1906, TO JUNE 30, 1907



MAJOR GEORGE P. AHERN  
DIRECTOR OF FORESTRY

MANILA  
BUREAU OF PRINTING  
1906

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Philippine Islands. Bureau of forestry.

ANNUAL REPORT  
OF THE 46  
DIRECTOR OF FORESTRY

OF THE  
PHILIPPINE ISLANDS

FOR THE PERIOD  
JULY 1, 1906, TO JUNE 30, 1907



MAJOR GEORGE P. AHERN  
DIRECTOR OF FORESTRY

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1908

**Forestry**

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# ANNUAL REPORT OF THE DIRECTOR OF FORESTRY, FISCAL YEAR 1906-7.

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MANILA, P. I., June 30, 1907.

SIR: I have the honor to submit herewith a report of the work of the Bureau of Forestry for the period July 1, 1906, to June 30, 1907.

The work during the past year has progressed much more satisfactorily than in former years. With two exceptions, the foresters have completed two years of service in the districts under their charge and all will continue service in that part of the Islands now so well known to them. It takes a forester at least one year to make one thorough inspection of his district where logging operations are being conducted.

## REPORT OF THE FORESTERS' CONFERENCE.

[H. D. EVERETT, *Recorder.*]

The second annual conference of the foresters of the Philippine Bureau of Forestry was held recently in Manila. This annual conference of the directing members of the service, following the close of each fiscal year, is becoming more useful and necessary each year in settling the forest problems which arise in the different districts. The discussion of forestry questions at this conference resulted in many recommendations for the betterment of the service.

The Director of Forestry presided at the meeting and opened the conference with an address on the work of the Bureau, reviewing the former instructions given to the foresters and expressing his satisfaction on the amount of work done during the year.

The following foresters were present: Messrs. William Klemme, Theo. Zschokke, H. M. Curran, William H. Kobbe, F. L. Pray, M. L. Merritt, and H. D. Everett. Messrs. Whitford and Hutchinson were unable to attend, the former being absent on a vacation in the United States and the latter being engaged in an important piece of field work in Mindanao.

Each forester read his annual report, which was a progress report showing what had been done in his district during the past fiscal year. These were especially interesting as the past year was the first entire year's work done by them since the reorganization of the Bureau in 1905, which made the work of the Bureau more technical than administrative. The reports showed what had been done and how it had been done, naturally causing much valuable discussion. In spite of

the many difficulties encountered by the foresters the amount of work of permanent value accomplished was gratifying.

All reconnaissance sketch maps were left by each forester in the map section for compilation, as well as information concerning means of communication in their districts.

All applications for licenses for the coming year were submitted with recommendations in each case.

A programme for the conference arranged the order in which the topics for discussion would be taken up.

The conference then proceeded to discuss in detail all phases of the present work, criticising methods and making many suggestions to increase the efficiency of future work.

Representatives of the Bureau of Internal Revenue, Bureau of Lands, Bureau of Science, and of the Manila lumbermen were present when matters concerning their work were discussed.

Considerable attention was given to devising means of securing a competent Filipino force to carry on the work which is becoming more technical. As the establishment of a regular training school for rangers is at present impracticable it was decided to secure student assistants from the public schools, preferably the trade schools, who after they have shown their capacity and fitness shall enter the service as rangers.

The most important work accomplished by the conference was the reorganization of the field work of the Bureau. The title of the division of forest products was changed to the "division of forest investigation" and a new division was organized to be known as the "division of forest administration." Each division is under the charge of a committee of three foresters which plans its work. The division of forest administration with a force of six foresters and about eighteen rangers will take charge of the administrative work, such as pertains to licenses, violation of the Forest Act, etc., and will also do as much special work of investigation as possible in coöperation with the division of forest investigation. The division of forest investigation with a field force of three foresters and three rangers will carry on special studies and make special maps in all parts of the Islands. By this new organization it is expected that the work can be done in a more systematic manner.

The privilege of the free use of timber which was granted to the residents of the Islands October 19, 1905, for a period of five years was discussed in great detail. In addition to the opinions of the foresters on the question, letters were read from important lumbermen, dealing with this privilege. The conference decided that the privilege as granted without regulation or restriction, except regarding first-group timber, not only made proper administration of the forest most difficult, but also tended to establish a servitude or forest right which would be found almost impossible to abolish after the lapse of years.

Homesteads and cain̄gins (clearings) were thoroughly discussed as usual. It was decided that radical changes were necessary. Permits should no longer be required for cain̄gins on private lands. On public lands, few or no cain̄gins should now be granted. People desiring to make cain̄gins should be required to make out homestead applications for the land. In this way the Bureau will encourage permanent occupancy of small farms instead of shifting cultivation within the forest regions.

Interesting additional recommendations which were discussed and adopted show the character of the conference:

1. That the map work be pushed during the coming year in view of its importance at this time. The principal mapping will be the land classification or plot maps. In addition a beginning will be made in establishing boundaries for possible future reserves. Detailed surveys to be made of a few important cutting areas.
2. That every possible effort be made to assist Dr. Foxworthy, of the Bureau of Science, by means of data and wood specimens, in making a definite key for the determination of Philippine woods.
3. That collections of botanical, wood, and other museum specimens be continued, but made with the least possible expense. That seeds of the important trees be collected to be used in nursery experimentation work on the Lamao Forest Reserve by Mr. Cuzner, of the Bureau of Agriculture.
4. That identified railroad ties of the following species be secured and placed in the track in coöperation with the Philippine Railway Company, in order to secure definite information regarding their durability and fitness for this use: Toog, Dao, Apitong, Amuguis, Cubi, Banuyo, Malaruhat, Agoho, Supa, Palo Maria, and Banaba.
5. That durability tests of Philippine timbers going into construction work be made whenever possible.
6. That the effort to introduce new species of timber into the markets be continued.
7. That a strenuous effort be made to amend Act No. 1407, so that the free use of lower group timber shall be regulated by the Bureau of Forestry.
8. That permits be no longer required for clearings on private lands adjoining the public forests.
9. That permits for cain̄gins in the public forests no longer be given, and that their place be taken by homesteads.
10. That, in order to encourage the utilization of small logs which should be removed from the forest, each forester certify to the Bureau of Internal Revenue those timber licensees in his district who can be depended upon to cut small logs without felling trees below the diameter limit imposed.

11. That each forester study the minor products collected in his district and their market value in order to assist the Bureau of Internal Revenue in imposing a specific tax on those forest products.
12. That efforts be made to introduce American saws, axes, engines, wire cables, and other logging tools.
13. That timber licensees be required to mark their timber in the forest with their own special mark.
14. That exclusive two-year timber licenses be granted to responsible lumbermen when their cutting areas have been mapped and roughly studied by a forester.
15. That foresters inspect personally the cutting areas of large operators, leaving only the inspection of unimportant licensees to rangers.
16. That the foresters make careful observations during the coming year on the influence of deforestation on the climate and waterflow, these observations to be embodied in their next annual report.
17. That the printed forms used by the Bureau be amended in such a way as to lessen the paper work of the field force as much as possible.
18. That the Manila office take as much of the clerical work as possible from the district officers especially in regard to circular letters.
19. That certain forest reserves be recommended as soon as data are at hand sufficient to limit their boundaries, and to justify the request for their reservation.
20. That an educational propaganda be inaugurated.—first, through the schools; second, by means of stereopticon lectures; third, through the newspapers, and fourth, through general discussion.
21. That in order to arouse interest in Philippine forestry in the United States, frequent articles or reports be sent to the American forestry magazines for publication.
22. That a course of forestry be established in the new Philippine College of Agriculture.
23. That a handbook of forestry for rangers be completed as soon as possible by the committee on publication.
24. That the annual conference of Philippine foresters be held each year in July, at which time all foresters can be assured of having at least one month in the Manila office.

The following committees were appointed by the Director of Forestry.  
 Administration : H. D. Everett, William H. Kobbe, William Klemme.  
 Forest investigation : H. N. Whitford, H. M. Curran, M. L. Merritt.  
 Publication : H. N. Whitford, H. D. Everett, William Klemme.

#### **PERSONNEL.**

The authorized force of the Bureau is as follows: One Director; field force, thirteen foresters, six assistant foresters, twenty-three rangers; one manager of timber-testing laboratory; clerical force, seven clerks, one draftsman, two messengers, one laborer.

The following changes have taken place in the personnel during the past fiscal year: Two appointments (probational), three temporary appointments, fourteen appointments (promotion), thirteen resignations, one forester transferred from Bureau to United States Forest Service, one ranger transferred from Bureau, three removals for cause, one death.

Several efforts have been made during the past year to secure four foresters and one manager for the timber-testing laboratory; but one forester was secured. The Civil Service Board reported that failure was due to the small salaries offered.

#### **REDUCTION IN GOVERNMENT CHARGES ON TIMBER IN CERTAIN PROVINCES.**

Act No. 1575, amending the Forest Act (January 1, 1907), provides but one scale of prices on Government timber in all provinces. Formerly the Government charges on timber in certain provinces were almost double that in others. The lower scale of prices was adopted. At present the Government charge on timber ranges, approximately, from \$1 to \$5, United States currency per thousand board feet.

#### **PHILIPPINE FOREST ACT DOES NOT APPLY TO UNITED STATES MILITARY RESERVATIONS.**

The following letter was received during the month of November, 1906:

**WAR DEPARTMENT, BUREAU OF INSULAR AFFAIRS,**

*Washington, October 13, 1906.*

SIR: With reference to letter from your office of the 7th of July inclosing excerpt from the minutes of the Philippine Commission of July 3, 1906, which quotes an opinion of the Attorney-General of the Philippines that the Commission has no authority to extend the forestry laws over the United States reservations, and contains a resolution directing that the matter be submitted to the Secretary of War for final determination, I have the honor to state that, upon the request of this Department, the Attorney-General of the United States has rendered an opinion in which he holds that the Philippine Government can not extend its forestry laws to the military reservations in those Islands. A copy of this opinion is herewith inclosed.

Very respectfully,

A. D. WILCOX,

*Chief Clerk, in absence of Chief of Bureau.*

The GOVERNOR-GENERAL OF THE PHILIPPINES, *Manila, P. I.*

#### **THE FREE-USE PRIVILEGE.**

The free-use privilege has been the source of much complaint from the lumbermen and from forest officers. In many cases it is impossible to fix the blame for violating the Forest Act. The free-use men cut when, what, and where they please. Undersized trees of the first and other groups are taken; valuable trees will be felled and only a small part of them utilized; valuable forest tracts are being devastated in not a few but in many parts of the Islands, and it is impossible, in the majority of cases, to fix the blame.

The residents of these Islands should be allowed to take all the timber and other forest products they need for their own personal use, free of charge and without license, but the Bureau of Forestry should be authorized to indicate to these people the forests where they can get these products and the forests in which such free use is prohibited. The matter was referred to a committee of three foresters to submit a report which would include an amendment to Act No. 1407 granting the free-use privilege.

The report submitted is as follows:

#### REPORT OF THE COMMITTEE ON FREE-USE PRIVILEGES.

It is the opinion of this committee that every home builder in the Philippine Islands should have a similar privilege to that granted settlers in the vicinity of national forests in the United States. There each settler is allowed an amount of timber each year not to exceed a fixed amount, sufficient for his needs to be used by him in house building, repairs, fencing, etc. To obtain this timber he must apply to local forest officers and remove the material desired from such places and in such a manner as not to injure the public forests.

A similar right has been granted the Filipino people, but without the restrictions necessary to insure the safeguarding of public interests. The Filipinos may enter any public forest and cut such timber as they desire, without restriction as to amount or sizes. Twelve of the more valuable woods, comprising what is known as the first group, are protected by the present law, but these, as a group, furnish less than one-sixth of the total cut of the Islands, and the greater part of this one-sixth is from three to four species cut in the more inaccessible and thinly inhabited regions. In the thickly populated districts these twelve timbers have almost disappeared, and the bulk of the cut comes from lower group trees. It is from these species of the lower groups that the future supplies of the Islands must be drawn. They are of more importance to the agricultural and commercial development of the Islands than the first-group timbers.

Rapid economic development depends on cheap construction timbers, and not on fancy woods or expensive woods suited to special uses. Timber that will furnish the necessary construction timbers for Philippine industrial development are found in the existing forests but are being rapidly destroyed by the present unrestricted cutting.

We are required to-day to carefully inspect and regulate the cutting of one thousand timber licensees whose work is, in the main, satisfactory and is not materially injuring the forests, and we are forbidden to interfere with the cutting of a population of seven millions, of whom one and one-half millions are grown males. These men may enter the forests, cut and waste at will the principal timber resources of the Islands.

The Bureau of Forestry was called into existence to perpetuate the forests by wise use; to give to the people of these Islands timber and fuel supplies for all time, and to safeguard its agriculture by caring for watershed forests. Under the present law the hands of the Bureau are tied, and the policy as embodied in this law, allowing the free unrestricted use of timber, if persisted in, means the ultimate waste and destruction of the Islands' timber resources, and a checking of its future economic development.

In view of the shortcomings of the present law, its amendment is suggested. This amendment should contain such part of the following rough draft as, in the opinion of the Philippine Commission, may best protect the public interests and aid in home building:

**AN ACT amending subsections (b) and (c) of section nine of Act Numbered Fourteen hundred and seven, so as to permit the free use of forest products and providing for the regulation thereof.**

*By authority of the United States, be it enacted by the Philippine Commission, that:*

**SECTION 1.** Subsections (b) and (c) of section nine of Act Numbered Fourteen hundred and seven be, and the same are hereby, amended so as to read as follows:

"SEC. 9. (b) Every resident living in or near the public forests, and who is in need of building material, fuel, fencing, or other forest products, stone, or earth, for the personal use of himself or his family, may, without written permit, enter such public forest as the Director of Forestry, with the approval of the Secretary of the Interior, shall designate, and may remove, free of charge, an amount of timber not to exceed fifteen cubic meters in any fiscal year, and such amount of other products as is actually necessary for his personal use. The Director of Forestry, with the approval of the Secretary of the Interior, shall prescribe species, sizes, and manner of removal of forest products, stone, or earth, and may, if the public interests demand it, withhold from any individual the right, under this act, to the free use of timber in the public forests.

"(c) The Director of Forestry, with the approval of the Secretary of the Interior, may from time to time set aside certain tracts of public land, which shall be known as communal forests, and be assigned to certain communities, whose free-use privilege shall be confined solely to these areas, subject to the limitations prescribed in subsection (b). These forests shall be on lands more suitable for forestry than for agriculture, and shall be administered by the Director of Forestry, with the approval of the Secretary of the Interior, under such rules and regulations as he may deem wise. The object of the administration of these communal forests shall be to furnish the people having rights therein with the forest products necessary for their home use, and to preserve their water supply. Exploitation of said communal forests for revenue shall be allowed only when the best interests of the forest demand a cutting in excess of local needs. Such exploitation for revenue shall be under license as in other public forests, and forest charges shall be collected in the usual manner, and covered into the Treasury of the Philippine Islands. These revenues to be returned to the community having rights in the given forest, and be devoted, under the direction of the Secretary of the Interior, acting with the advice of the Superintendent of Public Instruction, to the public education of the community and the improvement and preservation of its forests."

SEC. 2. The public good requiring the speedy enactment of this bill, the passage of the same is hereby expedited in accordance with section two of "An act prescribing the order of procedure by the Commission in the enactment of laws," passed September twenty-sixth, nineteen hundred.

SEC. 3. This act shall take effect on its passage.

**FREE USE OF FIRST-GROUP TIMBER IN THE PROVINCE  
OF CAGAYAN.**

On January 8, 1907, a resolution was passed by the Philippine Commission granting authority to any resident of the Province of Cagayan to take free of Government charge, under Government license for one year, certain timbers of the first group as he may require for house-building, boat building, and other personal use of himself and family.

The forester in charge of this district reports that this privilege has been abused; that the rich residents only are taking advantage of it and that much valuable undersized timber is being taken, contrary to law.

After this resolution was published six other provinces presented petitions for the free use of the first-group timber, but these petitions were not granted.

**LARGE LUMBERING OPERATIONS ACTUAL AND POSSIBLE.**

At least six large logging and lumber companies are needed in these Islands to exploit forest tracts now available for operations; but one such, The Insular Lumber Company, is now operating on the Island of Negros. This company has a twenty-year exclusive privilege on a tract of 69 square miles and will shortly log and mill approximately 60,000 to 70,000 board feet per day. Five or more such companies are needed in the Islands to supply the local and foreign markets with timber at more reasonable prices than rule at the present time.

Improved methods of forest exploitations by a few additional large companies would simplify the work of the present small force of forest officers. The thinly forested regions would then be used only as sources of supply for the local demand, and the few remaining valuable timber trees in such localities could be protected and retained as centers of reproduction.

At the present time the Philippine market will consume approximately 100,000,000 feet of lumber per year. The amount of Oregon Pine taken last year at Shanghai, China, was 85,000,000 feet; at Sydney, Australia, 65,000,000 feet. These three markets should take at least 300,000,000 feet per year of Philippine timber of a grade similar to or better than Oregon Pine.

In the forest tracts now available there are large stands of timber close to tide-water. The haul is short, labor is cheap, and stumpage charges are low.

There are a few native woods found in large quantities that are suitable for the making of furniture. These woods should find a market in the United States as well as in the other markets mentioned.

Desirable tracts of public forests are now available and unoccupied in Mindoro, Bataan, Negros Occidental, and Moro Provinces. Maps of these districts have been made and estimates prepared, showing the

stand, varieties of merchantable timber, possibilities of logging, etc. (See Appendix.)

The services of forest officers thoroughly acquainted with each tract will be placed at the disposition of prospective logging companies.

#### **NORZAGARAY RIVER IMPROVEMENT.**

Forest officers have reported from time to time that large stands of valuable timber were found on the upper waters of the Bayabas and Norzagaray Rivers in Bulacan Province. This region is close to the Manila market, but the forests were not exploited to any extent on account of huge boulders in the rivers mentioned which obstructed the passage of rafts.

A forester of this Bureau made an investigation and report. The matter was taken up with the governor of the province and with the Bureau of Public Works.

The work of removing these obstructions was promptly inaugurated by the Bureau of Public Works under authority of a resolution of the Philippine Commission. In a letter from the provincial governor this office was informed that the obstructions have been removed.

This adds much to the available forest resources of the Province of Bulacan.

#### **RAILWAY TIMBER.**

Railway construction in the Islands has proven a great stimulus to the timber industry. The railway officials are making an effort to secure native timber when possible.

Act No. 1510 of the Philippine Commission gives the railway companies permission, with the approval of the Governor-General, to take timber, stone, and earth from the public lands. Act No. 1544 exempts all such material from internal-revenue taxes, provided the material is taken under license issued by this Bureau.

The railway companies require a large amount of timber for general construction as well as for ties, but find much difficulty in securing it from timber licensees. A glance at the page in the appendix to this report giving the list of amounts of timber taken under license last year by the twenty leading operators will indicate a reason for the difficulty.

The antiquated methods of logging in vogue in these Islands by all but one operator will force the railway companies to look to foreign countries for its timber unless some of the timber licensees adopt modern methods.

Forest officers have endeavored to interest the licensees in furnishing material for the railways. Many licensees lacking experience in making ties have found that the proposition is not as lucrative as it at first appeared.

Forester Everett, who has charge of the forests of the Visayan Islands where there is much activity in railway construction, makes the following statement as part of his annual report.

#### RAILROAD TIES.

The cutting of railroad ties has been studied with considerable care by the forester and discussed in several monthly reports. Its importance deserves discussion in this report.

In October, 1908, the forester received copies of the proposition and specifications of the Philippine Railway Company for ties with instructions from the Director of Forestry to interest timber licensees, as it was very desirable that Philippine timber be used in the new railroads as far as possible.

After reading the proposition the forester could only think that the Philippine Railway Company did not want to use native woods for ties and had issued a request for them for policy sake only. Nevertheless, the forest officers of the district have devoted time and effort to stimulate the tie-cutting industry, and the Bureau of Forestry in general has done everything possible to assist the railway company in securing ties in the Islands. Timber licenses have been granted without question to all who had made tie contracts.

Contracts were made by many licensees in the district and cutting began with enthusiasm. After eight months I believe that tie cutting has almost stopped in this district. The contractors have found it a dangerous and losing business, for the following reasons: (1) The scarcity of the seven kinds of wood which alone are accepted; (2) the severe inspection of the ties by the railway company and lack of a market for the rejected ties; (3) the low price offered for such valuable timbers in the form of ties.

There is little doubt that the Philippine Islands can and should furnish the ties for the new railroads. Of what value is the boasted forest wealth of the Islands if the railroad timbers are imported from the United States and Australia?

The Government should investigate the matter before permitting the importation of railroad timbers and discover conclusively why they can not be secured in the Islands.

The fault, in my opinion, will not lie in the restrictions of the Bureau of Forestry, does not lie in the nonproductiveness of our forests, and does not lie in the inefficiency of our people, but lies in the proposition of the railway company. Given a suitable proposition and inspection, there will be little difficulty in securing the necessary timber in the Islands. The present proposition should be amended (1) in regard to price, (2) in regard to classes of timber, and (3) in regard to the inspection.

#### 1. PRICE.

One peso and sixty centavos is paid for ties made from Molave, Dungon, Ipil, Tindalo, Yacal, Acle, and Betis delivered on the right of way or in Iloilo and Cebu. It must be borne in mind that the Visayan roads will not pass through or very near any forests where such ties can be cut. Consequently the ties are cut in distant forest regions and transported at high cost to Iloilo and Cebu. One peso and thirty centavos is offered for ties placed in lots of 1,000 or more on board a boat of the company. I know of no contract made in this district under these terms, as the company prefers the ties delivered by the contractors, and few contractors can get 1,000 ties ahead in one place for evident reasons.

In discussing the question of price, take a fair example: A licensee has put in all his available capital and six months of his time and has delivered 1,000 ties in Iloilo at the total cost to him of ₱1,000. Seven hundred ties are

accepted at ₱1.60 each and 100 at ₱0.80, the remaining 200 are rejected and he pays 15 centavos Government charges on each of them and is lucky to sell them for ₱0.50 each. He receives a total of ₱1,270. He sees that by six months' hard work, employing a capital of more than ₱1,000 and undergoing considerable risk, he has made ₱270, or ₱45 a month wages, with no interest on his capital, and he is fortunate to have done so well. Then he figures on Molave logs. Molave brings ₱1 per Spanish cubic foot in the log. A log containing 12 cubic feet would not make more than four ties. For the log he would receive ₱12 in Iloilo, and if he worked it up into ties he would get ₱6.40. Consequently many who began cutting ties have changed to cutting logs for the general market.

## 2. CLASSES OF TIMBER.

Anyone familiar with the forests and timbers of the Philippine Islands recognizes the absurdity of accepting only seven classes of railroad ties. Not only are there other timbers suitable for railroad ties, but confining the list to those seven makes logging so difficult and costly that they can not be cut for the price offered. Further, it is doubtful if there is sufficient accessible timber of those kinds in the Visayas to furnish enough ties for the Panay, Negros, and Cebu railroads.

## 3. INSPECTION.

The inspection of ties has not been sufficiently liberal in view of the fact that tie cutting is a new industry in the Philippine Islands, but has been so strict as to discourage the contractors, when a little more consideration and liberality would have done much to have kept them satisfied with terms otherwise so unsatisfactory. One licensee arrived in Iloilo with 650 ties, the result of five months' hard work on a wild coast. Four hundred and fifty were rejected because they were Banuyo. Now although Banuyo is not included in the contract its general reputation for durability is such that it would have been better to have accepted those 450 ties and kept a contractor than to have almost ruined him by rejecting them.

The purchasing agent for the Philippine Railway Company, upon receipt of the above extract, attended the foresters' conference and discussed the matter of securing railway material. It was recommended by the foresters that "additional woods be given a trial as ties."

A list of such woods was submitted and the railway company agreed to test them if the foresters would coöperate in securing the desired number. The division of forest investigation will attend to this matter during the coming year.

## CAINGINS.

Forest Regulation No. 25, paragraph A, authorized municipal presidents, in absence of a forest officer, to grant permits to make caingins (clearing by fire) on public lands. This office was advised from various sources that the municipal presidents were not careful in carrying out this regulation and that much valuable timber was needlessly destroyed as a result thereof.

The regulation was amended on December 6, 1906, by authority of the Acting Secretary of the Interior. At present municipal presidents are authorized under the law (sec. 27 of the Forest Act) to grant caingin permits on private woodlands adjoining public forests.

There is no further necessity for granting cain̄gin permits; the Homestead Law is very liberal and gives any resident of the Philippine Islands much latitude in selecting a location.

The only persons authorized to grant cain̄gins on public lands (forest officers) will assist any resident in securing a homestead rather than granting a cain̄gin permit. In the records of this Office there is a list of persons granted cain̄gin permits and homesteads during the past two years. This list is so indexed that a check may be readily kept on persons making cain̄gins each year or two.

These devastators of the forest will travel for many miles from their barrios to the edge of the forest and begin operations by ringing the tall trees, later felling and burning them. The ash makes a good fertilizer, the soil is loose, and plowing with a stick is all they deem necessary; a small amount of rice is planted and a very small crop is raised.

In a year or two the tall cogon grass begins to appear and forces the man, who will not even attempt to plow it out, to move once more into the heavy timber and repeat the former operation.

The maps now on file in this Office show in color a vast area of such land.

Should a person desire to purchase public land in a region where cain̄gins had been made he would be informed that a large part of such devastated land was private property and claimed by the persons above mentioned although no taxes had ever been paid or other previous claim made by them.

#### **REGISTRATION OF PRIVATE WOODLANDS.**

During the fiscal year 1907, titles to twenty private woodlands were registered in the Bureau of Forestry in accordance with section 24 of the Forest Act. The total area of the estates registered is 135,880.42 hectares, of which 68,222 represented the approximate area of woodland. Thirteen of the estates registered during this period are part of the estates belonging to what is known as the "friar lands" recently purchased by the Philippine Government.

Up to the present time 169 estates with more or less woodland have been registered in this Office comprising a total area of 283,693 hectares or approximately 700,000 acres.

#### **FOREST MAPS.**

The ten forest districts of the Archipelago are divided into plots of 10 kilometers square and each square given a number. Forest officers use as points of reference the places in the district that have been fixed by the Coast and Geodetic Survey.

Each forester while traveling in his district makes constant use of a topographical notebook, compass, and barometer; a reconnaissance sketch is made on each 10 by 10 kilometer sheet as he passes from

square to square. At this time the limits of the forests are noted, also the limits of the cultivated and uncultivated lands, condition of roads, trails, streams, etc. The original sheets thus plotted are sent to the Manila office. Copies are retained by each forester. The Filipino forest officers are being trained in this class of work and are making satisfactory progress.

More detailed surveys are made of special forest tracts by an assistant forester who is a competent topographical engineer. On these tracts careful forest studies are made by a field force consisting of one or more foresters, the rangers of the locality, and the necessary laborers.

These reports are prepared for the special use of prospective logging companies.

#### DIVISION OF FOREST PRODUCTS.

On July 25, 1906, the division of forest products was established. The object of the division is to investigate the amount, character, value, and uses of the Philippine forest products, and to bring this information to the notice of Philippine and foreign markets. As the records for the past years showed considerable partially classified information, it was necessary to collect and systematize this, and to prepare such part of it for publication as was deemed advisable. In accordance with this, the work of the division has been concentrated along the following lines:

- I. Preparation for the printer of data collected for publication.
- II. Classification and cataloguing of reports on hand.
- III. Collection of museum samples of forest products.
- IV. Durability tests.
- V. Forest investigation.

#### I. PREPARATION FOR THE PRINTER OF DATA COLLECTED FOR PUBLICATION.

The following, issued in December, 1906, were prepared for publication:

*Bulletin No. 4.—I. Mechanical Tests, Properties, and Uses of Thirty Philippine Woods. II. Philippine Sawmills, Lumber Market and Prices.* By Rolland Gardner, manager of the timber-testing laboratory.

*Bulletin No. 5.—Preliminary Working Plan for the Public Forest Tract of the Insular Lumber Company, Negros Occidental, P. I., by Foresters Everett and Whitford.*

*Bulletin No. 6.—Preliminary Working Plan for the Public Forest Tract of the Mindoro Lumber and Logging Company, Bongabon, Mindoro, P. I., by Foresters Merritt and Whitford.*

*Circular No. 1.—Opportunities for Lumbering in the Philippine Islands.*

The following bulletin will be ready for publication in the near future: "Preliminary Check List of the Principal Timber Trees in the Philippine Islands."

The following bulletins are in process of construction: "The First Ten Timber Trees of the Philippine Islands;" Some Philippine Forest

Types and Their Commercial Possibilities;" "A Ranger's Primer of Forestry."

A second edition of Bulletin No. 4 has been prepared and sent to the Bureau of Printing.

## II. CLASSIFICATION AND CATALOGUING OF REPORTS ON HAND.

The classification and cataloguing of reports collected during the five years' existence of the Bureau, up to July 1, 1906, meant the personal inspection, by the chief of the division of forest products, of all information collected covering the subject of forest products up to that date. This information is filed and indexed.

Papers on special subjects are filed as labeled. All material in the division of forest products has been thoroughly catalogued, each having one or more cards.

In both published and unpublished literature on the subject, a list of synonyms has been made for the principal timber trees of the Islands. This has been put on cards and placed in the general catalogue. In like manner, another series of cards show the uses of the different woods. The cards referring to the museum specimens of minor forest products have also been placed in this catalogue.

To sum up, the general catalogue contains the following: (a) Cards showing all subjects pertaining to the division of forest products found in the unpublished papers of the records; (b) cards with synonyms of the principal timber trees; (c) cards showing uses of the principal woods; (d) cards of minor forest products in the museum. At present there are approximately 5,000 cards in the general catalogue.

## III. COLLECTION OF MUSEUM SAMPLES OF FOREST PRODUCTS.

### LOG SPECIMENS.

With few exceptions, each wood specimen now in the museum consists of what can be designated as log specimens, with one or more hand specimens. The log specimens are divided into three sizes:

(a) Large; specimens 3 feet in height and from 10 to 25 inches in diameter, cut to show bark and cross, radial, and bevel sections.

(b) Medium; specimens 2 feet 4 inches in height and 6 to 12 inches in diameter, cut as above.

(c) Small; specimens 9 to 18 inches in height, cut as above, or smaller ones cut in various sizes.

These specimens are to be arranged, first, according to sizes, those of each size according to group, and within the group according to scientific names. The arrangement by scientific names is preferable to the use of common names, because specimens of more than one common name would otherwise become separated.

All specimens have labels giving information concerning its origin, herbarium number, uses, value, and quantity available.

The object of the wood collection is to obtain eventually authentic specimens of all the timber trees of the Islands and to make them as useful as possible to those interested in the wood and lumber industries of the Islands. The following is the present status of the wood collection: Total number of samples on hand, 3,235; total number of species represented, 336.

#### BEJUCOS.

The arrangement and numbering of the specimens of bejucos have been little disturbed. Catalogue cards have been made out containing such information as has been gathered concerning them. These cards have been inserted in the general catalogue and may be found under the common names of the bejucos desired.

Within the past year a number of commercial bejucos have been collected in fruit. As soon as the collection is sufficiently large it will serve as a basis for structural study, the results of which will make it possible to classify more satisfactorily the commercial collection.

Bejucos with botanical specimens are given the regular herbarium number.

Bejucos buyers for the American market have examined the large line of specimens in the museum. Preferred species have been noted. Prices quoted have been added to other information on the label. There are a number of desirable furniture bejucos in the Islands and an endeavor will be made to find a market for them. At present the principal use of Philippine bejucos is for baling purposes.

#### OTHER MINOR FOREST PRODUCTS.

The minor forest products other than bejucos had already been given a serial number, beginning with one. These numbers were retained. The whole collection was arranged in uniform boxes of three sizes. The exhibit was then arranged in groups under the following heads: "Almagiga," "Brea," "Rubber (including gutta-percha)," and "Miscellaneous."

Each specimen has the number pasted on it, a display card, and a catalogue card. The latter may be found in the general index. Minor forest products, with botanical material, are given herbarium numbers.

#### DURABILITY TESTS.

With the issuance of Circular No. 7, dated October 24, 1906, there was inaugurated a system of labeling timber used in certain classes of construction. Arrangements have also been made with the Bureau of Public Works, the Bureau of Posts, and the railway companies to aid in this work. The object of these tests is to obtain more accurate information concerning the durability of Philippine timbers. Reports of tests with wood samples are given a special file.

## FOREST INVESTIGATION.

During the fiscal year the following papers have been prepared that add materially to our knowledge concerning the Philippine forests and their products.

- I. Report on examination of pine lands, Province of Benguet. Forester H. M. Curran. (See Appendix.)
- II. A preliminary examination of the forests of the Kabibihan River basin, Province of Tayabas, P. I., with map. Forester William H. Kobbe.
- III. Report on forest conditions in the mining region of Aroroy, Masbate, P. I., with map. Foresters F. L. Pray and H. N. Whitford.
- IV. An available forest tract in Negros Occidental, with map. Forester H. D. Everett. (See Appendix.)
- V. Report on the forests of Danao, Cebu, and timbers used by the Insular Lumber Company, with map. Forester H. D. Everett.
- VI. A progress report on the investigation of Philippine timbers. R. Gardner. (Included in second edition of Bulletin 4.)
- VII. An available forest tract in northeastern Mindoro, with map. Forester M. L. Merritt. (See Appendix.)

The work of this division has been so satisfactory and its scope has so broadened that it has been decided to change its title to "division of forest investigation."

## TIMBER-TESTING LABORATORY.

The manager of the timber-testing laboratory resigned in February, having completed three years' service. He accepted a position with the Philippine Railway Company, receiving a substantial increase in salary.

During the year eleven native timbers and four Japanese woods received a series of tests.

A large number of log and other smaller wood specimens were prepared in the laboratory for the museum of this Bureau.

On December 4 the manager of the timber-testing laboratory was, at the request of the Secretary of Public Instruction, sent to Bacolod, Iloilo, Dumaguete, Tagbilaran, and Lucena for the purpose of inspecting the timber being used in the construction of schoolhouses at the places mentioned. There was a dispute as to the classes of wood used in construction. The contractors offered to pay all expenses if this Office would send a wood expert to make an examination and report. The examination and report showed that in certain places inferior woods not called for in the specifications and inferior grades of the woods called for were being used.

**CEYLON RUBBER EXHIBITION.**

A representative of the Bureau was sent to attend the Ceylon Rubber Exhibition held at Peradeniya, Ceylon, September 13 to 27, 1906. Specimens of Philippine rubber and gutta-percha and copies of all information with reference to this industry in the Philippine Islands were taken as exhibits. In his report he states "The Philippine exhibit, which was distinctly different from any other shown, attracted considerable attention and favorable comment."

Valuable information was secured with reference to the best methods of planting rubber, when and how to tap rubber trees, the preparation of the rubber for commercial use, etc.

He also purchased for the museum of this Bureau a set of the instruments used by rubber planters, samples of the best grade of rubber, and a set of interesting photographs showing the various stages of the rubber industry.

**ZAMBOANGA FAIR.**

An exhibit of wood samples and minor forest products common to Moro Province was prepared and exhibited at the Zamboanga Fair, held in Zamboanga, February 12 to 15, 1907.

**EXHIBIT OF FOREST PRODUCTS SENT TO THE UNITED STATES.**

An exhibit of forty large wood samples, a set of minor forest products, and several sets of publications of the Bureau were prepared and shipped to the Pacific Commercial Museum at San Francisco, Cal.

GEORGE P. AHERN,  
*Director of Forestry.*

The SECRETARY OF THE INTERIOR,

*Manila, P. I.*



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## **APPENDIX.**



# STATISTICS.

*List of licenses, July 1, 1906, to June 30, 1907.*

Province.	Timber.		Firewood.		Gratuitous.		Minor products.		Total.
	By Bu- reau.	By sub- ordi- nates.							
La Laguna	24		6	7			8	4	44
Rizal	15	1	10	22			3	5	56
Cavite	3		3	13				1	20
Bataan	49		5	31	2		2	17	106
Pampanga	13		1	5	2				21
Bulacan	20	2	1	3	2		4	10	42
Zambales	36		6	17	6		11	45	121
Tarlac	27	2	3	18	10			8	68
Pangasinan	42	26	1	31	2			15	117
Benguet	6	7	1		2		1		17
Nueva Ecija	31	12		8	3			13	67
Nueva Viscaya	2		12		4	1			19
Ilocos Norte	13		38		3				54
Ilocos Sur	20	29		22	1		2	5	79
Lepanto Bontoc	15	21			7				48
Union	10	7			1				18
Cagayan	36	3		9	1	38	1	28	111
Isabela	17				6			1	24
Tayabas	41	27		65	1			87	221
Camarines	25	3		32	3		1	64	118
Mindoro	44	7	1	43	1		3	50	149
Batangas	8			7					10
Romblon	11			8				8	22
Iloilo	13	4		33				24	74
Capiz	4	1	2	15				1	23
Antique	1							1	2
Negros Occidental	35	1		51	2			42	181
Negros Oriental	11	13		6	2			10	42
Cebu	10	5		3				5	23
Bohol	8			7					15
Leyte	13			12	1			7	33
Samar	3			5			1	4	13
Albay	20	2	4	5			5	4	40
Sorsogon	47	2	28	31	7		18	47	170
Moro	42	10		21	4		2	52	181
Misamis	6	1		1				3	11
Surigao	20			1	2		1	1	25
Palawan	24	1		8			1	14	46
Total	760	237	67	535	75	39	64	566	2,828

*Timber licenses granted in former fiscal years.*

Year.	By Bureau.	By subordi- nates.
1906	1,068	216
1905	1,177	494
1904	1,027	304
1903	988	
1902	672	

*Report of the utilization of forest products from public lands on which the Government charges have been collected from July 1, 1906, to June 30, 1907.*

Province.	Timber.			Minor products.	
	First group.	Lower groups.	Total.	Firewood.	Charcoal.
	Cu. meters.	Cu. meters.	Cu. meters.	Cu. meters.	Cu. meters.
Albay	115	680	795	880	
Ambos Camarines	212	2,027	2,239	5,351	
Antique				146	
Bataan	21	12,539	12,560	32,241	899
Batangas	23	19	42	955	
Benguet		995	995	3	
Bonol		511	658	194	
Bulacan	50	3,249	3,299	10,560	320
Cagayan	1,508	543	2,051	670	
Capiz		44	44	7,844	
Cavite	2	174	176	3,187	88
Cebu	100	392	492	2,632	390
Ilocos Norte	113	45	158	317	
Ilocos Sur	258	749	1,007	8,695	
Iloilo	172	53	225	15,084	405
Isabela	565	375	940	30	
La Laguna	8	1,360	1,368	1,665	
Lepanto Bontoc	10	6	16		
Leyte	156	1,059	1,215	5,158	
Mindoro	1,459	7,151	8,610	4,902	5
Misamis	10	26	36	117	
Moro	608	1,964	2,572	3,209	
Negros Occidental	123	5,955	6,078	7,446	
Negros Oriental	94	20	114	6,454	
Nueva Ecija	256	228	484	60	
Nueva Vizcaya	7		7		
Palawan	8,096	55	3,151	274	
Pampanga	4	795	799	12,909	146
Pangasinan	452	952	1,404	5,096	245
Rizal	6	61	67	16,851	
Romblon	6	517	523		
Samar	33	42	75	441	
Sorsogon	1,440	1,881	2,821	4,528	1
Surigao	84	79	163	487	
Tarlac	101	1,027	1,128	3,121	19
Tayabas	2,928	4,856	7,784	14,429	
Union	83	100	183		
Zambales	90	3,191	3,281	1,173	883
Total	14,335	58,220	67,555	176,559	8,351
Province.	Tan bark.	Dye bark.	Wood oils.	Rattan.	Gum mastic.
	Quintals.*	Quintals.*	Liters.	Pieces.	Quintals.*
Albay				1,170,900	100
Ambos Camarines				11,692,074	308
Antique	9	40		39,000	
Bataan				3,732,417	
Batangas				187,890	
Bohol			12	38,000	
Bulacan	25			1,017,200	8
Cagayan	225			4,587,800	1
Capiz	83	117	612		
Cebu	113		1,098	529,550	
Ilocos Norte				6,480	
Ilocos Sur				177,350	
Iloilo		6		64,800	
Isabela				856	

\* Metric quintal of 220.46 pounds.

*Report of the utilization of forest products from public lands on which the Government charges have been collected from July 1, 1906, to June 30, 1907—Continued.*

Province.	Tan bark.	Dye bark.	Wood oils.	Rattan.	Gum mastic.
	Quintals. <sup>a</sup>	Quintals. <sup>a</sup>	Liters.	Pieces.	Quintals. <sup>a</sup>
La Laguna					
Leyte	497		1,128	600,300	
Mindoro	2,902	409		2,678,880	
Misamis				886,080	
Moro	2,622	1,033		878,412	
Negros Occidental	676		4,811	1,685,500	4,834
Negros Oriental	69		5,283	2,605,500	16
Nueva Ecija	226			1,776,100	2
Palawan	127			867,482	
Pangasinan	154	10		471,800	811
Rizal				402,700	
Romblon	8			2,085,520	
Samar	57		2	48,000	
Sorsogon	1,214	6		9,409,050	4
Surigao	70			284,150	
Tarlac	31			61,858	
Tayabas	219	287		1,029,740	543
Zambales				1,615,880	
Total	9,328	1,902	12,941	50,078,719	6,225

<sup>a</sup> Metric quintal of 220.46 pounds.

Gutta-percha and rubber	metric quintals	942
Dyewood, Province of Iloilo	do	88,841
Pitch	do	404
Gogo	do	181
Dilliman (vine for fish traps)	pieces	125,160
Stone	do	642
Do	cavanes	318
Earth	ollas	56

*Amount of timber taken out by leading licensees during the fiscal year 1906-7.*

Licensee.	Location.	Amount cut.
Insular Lumber Co. <sup>a</sup>	Cadiz Nuevo and Sagay, Negros Occidental	Cu. meters. 2,619
Mindoro Lumber and Logging Co. <sup>a</sup>	Pinamalyan, Mindoro	1,194
Reiss & Mitchell	Pasacao, Camarines	448
Timber Cutter's Association of Unisan	Pitogo, Tayabas	1,266
John Gibson	Pinamalyan, Mindoro	1,181
Vicente Mijares	Dinalupihan	1,080
Jose Verchez	Calauag, Tayabas	924
Feix Labasan	Subic, Zambales	797
Charles A. Barber	Pinamalyan, Mindoro	768
Beebe, Lyon & Co.	Zamboanga, Moro	761
Nicanor Afable	Subic, Zambales	695
Faustino Lichauco	Orion, Bataan	682
Compania Maderera de Luzon	Guinayangan, Tayabas	642
Gelacio Linas	Moron, Bataan	682
Ang Katilaagan	do	609
Ramon Murga	Puerto Princesa, Palawan	604
Astigarraga & Co	Camalaniogan, Cagayan	599
Juan Duran	Moron, Bataan	567
Marcelo Gutierrez	Bagac, Bataan	569
Paulo Gustilo	Manapla, Negros Occidental	544
Total		b 17,108

<sup>a</sup>Twenty-year license agreement.

<sup>b</sup> Equal to 5,130,900 feet board measure.

Only five other licensees have cut over 500 cubic meters. Nine hundred and ninety-seven timber licenses were issued during the fiscal year.

**NOTE.**—Five hundred cubic meters of Philippine timber as furnished the mills will approximate 150,000 feet board measure.

*Imports into and exports from the Philippine Islands of lumber during the fiscal year 1906-7.*

	Imports into the Philippines. <sup>a</sup>		Exports from the Philippines. <sup>b</sup>	
	Quantities.	Value (United States currency).	Quantities.	Value (United States currency).
From the United States		Feet B. M.		Feet B. M.
From other countries	10,784,000 2,574,000	\$163,866 119,843		
To the United States			181,000	\$3,630
To other countries			71,000	1,406

\* In addition, 3,008,000 feet board measure of Oregon Pine, free of duty, were imported by the Quartermaster Department, United States Army.

<sup>b</sup> Sappan wood (dyewood) to the value of \$51,695, United States currency, was exported. Cabinet ware and house furniture were exported to the United States to the value of \$910, United States currency, and to other countries to the value of \$1,908, United States currency.

*Applications for permits to make cainjins, July 1, 1906, to June 30, 1907.*

Province.	On public lands.			On private lands.		
	Granted.		Total.	Granted.		Total.
	By forest officers.	By municipal presidents.		By forest officers.	By municipal presidents.	
Albay	45	1	46			
Ambos Camarines	50	158	208	2	6	8
Antique	50		50	1	8	9
Bataan	175		175			
Bulacan	3		3			
Capiz	6		6			
Ilocos Norte	7		7			
Ilocos Sur	161	124	285			
Iloilo	8		8	1	1	2
Lepanto-Bontoc	31		31			
Leyte	15	1	16			
Mindoro	69		69	148	92	240
Moro	62	1	63	4	15	19
Negros Occidental	126	1	127			
Nueva Ecija	3	6	9	3	2	5
Palawan	20		20			
Pampanga	3		3			
Pangasinan						
Romblon	32		32	2		2
Sorsogon	12		12		17	17
Surigao	1		1			
Tayabas	175	7	182	46		46
Union		4	4		5	5
Zambales	3		3			
Total	1,057	303	1,360	207	158	360
Total 1906-7	657	464	1,121	121	71	192

*Applications for homesteads, purchase and lease of public lands, July 1, 1906,  
to June 30, 1907.*

Province.	Certified as more valuable for agricultural or forest purposes.						
	Homestead.			Purchase.			
	Agricultural.	Forest.	Total.	Agricultural.	Forest.	Total.	
Albay	6		6				6
Ambos Camarines	30		30				30
Antique	1	1	2				2
Bataan	18		18	4		4	22
Cagayan	10		10	1		1	11
Ilocos Norte	18		18				18
Ilocos Sur	15	1	16	3		3	19
Iloilo	19		19				19
Isabela	31	2	33	2		2	35
La Laguna	2		2				2
Leyte	9		9				9
Mindoro	84	2	86	1		1	87
Moro				1		1	1
Negros Occidental	102	9	111				111
Negros Oriental	7	1	8	1		1	9
Nueva Ecija	160		160	1		1	161
Pampanga	9		9				9
Pangasinan	17		17				17
Rizal	10		10				10
Romblon	48		48				48
Sorsogon	41		41				41
Surigao	3		3				3
Tarlac	35		35	1		1	36
Tayabas	189	3	192	8		8	200
Union	4		4				4
Zambales	13		13				13
Grand total	881	19	900	23		23	923
During fiscal year 1905-6	318	16	334	20	1	21	355
Total, two fiscal years	1,199	35	1,234	43	1	44	1,278

One lease each in the Provinces of Bataan, Palawan, and Tayabas, and nine leases in the Moro Province were applied for, all certified as more valuable for agriculture.

On June 30, 1907, there were 1,427 homestead, 22 sale, and 2 lease applications pending the report by forest officers.

#### *Revenue from the sale of forest products.*

Province.	Amount.	Province.	Amount.
Albay	₱1,542.40	Mindoro	₱2,681.29
Ambos Camarines	6,475.68	Misamis	1,192.63
Antique	39.78	Moro	14,811.74
Bataan	4,152.56	Negros Occidental	4,218.65
Batangas	605.63	Negros Oriental	676.82
Benguet	942.55	Nueva Ecija	1,580.15
Bohol	431.15	Palawan	1,668.28
Bulacan	7,475.48	Pampanga	2,589.28
Cagayan	4,752.33	Pangasinan	5,708.70
Capiz	1,340.46	Rizal	2,252.48
Cavite	520.50	Romblon	217.49
Cebu	7,177.52	Samar	569.14
Ilocos Norte	1,528.46	Sorsogon	4,414.84
Ilocos Sur	8,428.27	Surigao	431.85
Iloilo	14,766.64	Tarlac	2,634.41
Isabela	2,344.29	Tayabas	6,871.72
La Laguna	1,489.34	Union	1,067.91
Lepanto-Bontoc	84.50	Zambales	724.72
Leyte	4,616.78	Total	191,080.49
Manila	78,174.67		

*Expenditures by the Bureau of Forestry, July 1, 1906, to June 30, 1907.*

## FIELD FORCE.

## Salaries and wages:

Forest officers .....	\$58,987.66
Map section .....	2,240.00
Labor hire and field parties .....	2,244.37
Per diems and traveling expenses .....	14,244.89
Postage and telegrams .....	386.74
Transportation and freight .....	1,368.01
Supplies .....	983.18
Office rents .....	434.00
Commututed leaves .....	3,934.00
Total .....	84,822.85

## CLERICAL FORCE.

Salaries and wages .....	\$10,651.83
Postage and telegrams .....	547.00
Labor hire .....	12.00
Transportation .....	223.46
Office supplies .....	370.14
Commututed leaves .....	3,389.66
Total .....	15,194.09

## TIMBER-TESTING LABORATORY.

Salaries and wages (one assistant engineer) .....	\$1,718.89
Supplies .....	210.46
Wood samples .....	516.19
Commututed leave .....	825.10
Total .....	3,270.64

## OTHER EXPENSES.

Printing and binding .....	\$2,752.34
Repairs and miscellaneous expenses .....	964.44
Refunds .....	1,651.28
Total .....	5,368.06

## RECAPITULATION.

## Expenses:

Field force .....	\$84,822.85
Clerical force .....	15,194.09
Timber-testing laboratory .....	3,270.64
Miscellaneous .....	5,368.06
Total .....	108,655.64

The above includes expenditures for outstanding obligations pertaining to the fiscal year 1906, amounting to \$3,606.09

*Expenditures by the Bureau of Forestry, July 1, 1906, to June 30, 1907—Cont'd.*

## RECAPITULATION--continued.

Appropriation for 1907 .....	¶100,000.00
Additional appropriation .....	5,000.00
Balance from fiscal year 1906.....	6,853.90
<hr/>	
Total .....	111,853.90
Outstanding obligations fiscal year 1906, of which ¶1,353.50 reported as expenditures in last annual report, but actually paid during fiscal year 1907 .....	4,969.50
<hr/>	
Available for fiscal year 1907 .....	106,884.31
Balance on hand June 30, 1907.....	1,834.76
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Expenditures fiscal year 1907 .....	105,049.55

## AN AVAILABLE FOREST TRACT IN NEGROS OCCIDENTAL.

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By H. D. EVERETT, *Forester.*

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There is in northern Negros a large tract of forest very suitable for a lumbering operation on a large scale. In respect to purity of stand and heaviness of yield, factors of great importance in a large operation, it is probable that this forest is not excelled in the Philippines. In almost all respects it is similar to the tract of the Insular Lumber Company, for which a working plan was made in 1906. For a detailed description of that tract see Bulletin No. 5, Bureau of Forestry, Manila, P. I., "A Preliminary Working Plan for the Public Forest Tract of the Insular Lumber Company, Negros Occidental, P. I."

The tract adjoins that on which the Insular Lumber Company is now operating, and extends from the Talabon River, in Cadiz, through the municipalities of Manapla, Victorias, Saravia, and Silay, gradually moving farther back from the coast up the slopes of Mount Silay or Maripara (see map). The more accessible part and that which would be suitable for present lumbering is in the towns of Cadiz, Manapla, and Victorias.

The topography, as shown by the map, is characterized by low broad ridges in the lower edge of the forest which gradually become sharper and higher and separated by deep cañons as the mountain is ascended. The soil is deep brownish, yellowish clay, fairly suitable for agriculture.

The forest is characterized by a numerous dominant stand of six large trees, belonging to the family Dipterocarpaceæ, which are merchantable species. They are Balacbacan (*Shorea polysperma* Merr), Red Lauan (*Shorea* sp.), Apitong (*Dipterocarpus grandiflorus* Blanco), Almon (*Shorea squamata* Dyer), Lauan Dunlog (*Shorea contorta* Vid), and Lauan bagtican (*Shorea* sp.). The wood of the first two is red and very similar, and that of the last three is commonly called White Lauan. Beneath these large trees is an understory of many smaller species, some of which may become merchantable. Of this forest there are 25 square miles available lying below 750 feet above the sea. This timber is accessible and can be logged profitably at the present time. In addition there are 15 square miles above 750 feet which can be logged later.

The accessible 25 square miles, or 160,000 acres, have an average of at least 30,000 feet B. M. of merchantable timber per acre or a total supply of 480 million feet B. M. This would supply a sawmill cutting

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an average of 50,000 feet B. M. per day for three hundred days each year for thirty-two years.

The most important factor affecting the exploitation of this forest is the transportation of the lumber to the market. The tract differs from that of the Insular Lumber Company in that it has no good navigable river which steamers and barges can readily enter. The Sicaba River, which is navigable nearly to the barrio of Caduhuan, has such a bad bar that its use as a harbor is practically out of the question.

The best and cheapest method of exploitation is clearly by means of railroads. The new railroad which the Philippine Railway Company has contracted to build in Negros, as planned, will pass approximately through the barrio of Caduhuan, parallel with the edge of the forest and a little more than 2 miles distant. A lumber company would find it advisable to build its sawmill on the Sicaba River where the railroad crosses it and build its own logging railroad into the forest. The sawn lumber could then be shipped to the Danao River, the northern terminus of the railroad, a distance of about 25 miles, or to Silay. Such an operation will require a large capital, but managed efficiently should prove profitable.

So similar are this tract and the adjoining tract on which the Insular Lumber Company are now operating that the following extract from Circular No. 1, Bureau of Forestry, applies equally to both and gives a clear idea of the lumbering possibilities in this region.

#### SUMMARY OF LUMBERING POSSIBILITIES ON ONE TRACT OF PUBLIC FOREST IN NEGROS OCCIDENTAL.

In Bulletin No. 5 of the Bureau of Forestry a description is given of the forests and lumbering operations near Cadiz, Negros Occidental. The summary of this bulletin is as follows:

Area of tract, 69 square miles; area in forest, 37,668 acres.

Stumpage charges on this tract are collected on manufactured lumber and average less than \$1.20 (United States currency) per thousand feet B. M.

Six tree species constitute about 90 per cent of the total stand of merchantable timber on the entire tract.

*Amount and value of merchantable timber on tract over 20 inches in diameter.*

Species.	Stump-age charge, M feet B. M. (approximate).	Feet B. M. per acre.	Total yield, M feet B. M.	Manila price, M feet B. M.	Value per acre.	Total value.
Apitong -----	4	5,140	198,572	90-115	460	17,421,480
Almon -----	2	7,150	269,269	70- 90	500	18,848,880
Balacbacan -----	4	4,640	174,742	70- 90	825	12,281,940
Mangachapuy (Red Lauan) Lauan-bagtican and Lauan-dunlog -----	2	13,240	498,618	70- 90	925	34,908,280
Total -----		1,880	70,801	70- 90	180	4,956,070
		32,050	1,207,002		2,840	88,261,580

₱2 equal one dollar, United States currency.

## AN AVAILABLE FOREST TRACT IN NORTH-EASTERN MINDORO.

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By M. L. MERRITT, *Forester.*

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During the year a special study was made of the forests of northeastern Mindoro by the district forester. The area studied has a coast line of about 65 miles and extends back 7 to 18 miles from the beach. (See map.)

With the exception of a strip 2 to 5 miles wide along the coast the whole area is solidly wooded. While some of the forest is not of the best quality, several excellent stands occur. The best stand, 40 square miles in extent, lies southwest of Lake Naujan. This lake is a body of fresh water about 9 miles long and 5 miles wide, deep and navigable throughout, with the exception of the western side which is shallow and low near the beach. It is connected with the sea by a river 9 miles in length. This river is deep and navigable for its upper half throughout the year, for its lower half during the rainy and a portion of the dry seasons.

In this region rapid tree counts were made on more than 100 acres along representative strips 10 meters wide. An average of about thirty-eight trees over 1 foot in diameter were found per acre. Of these trees 47½ per cent in numbers are of four species of *Dipterocarpus*: Alam (*Shorea squamata*), 27.7 per cent; Lauan (*Shorea contorta*), 9.7 per cent, Tanguile (*Shorea* sp.), 6.9 per cent, and Apitong (*Dipterocarpus* sp.), 3.2 per cent. Of the trees over 2 feet in diameter more than 70 per cent are of these four species. This will yield, after making an allowance of 25 per cent for defects, about 20,000 feet B. M. per acre. In making this estimate, account is taken only of trees over 60 centimeters (2 feet) in diameter of the four above-mentioned species. The entire area of 40 square miles of this forest, according to this estimate, contains 512,000,000 feet B. M.

In addition to this yield there are scattering trees of a few other commercial species.

The country thus forested is made up of clay hills rising from the lake shore to an elevation of about 800 feet at a distance of 4 miles inland. Ridges, slightly broken in a few places, run back into this area and afford direct access to about half of this timber. Some difficulty would be

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found in reaching the rest, due to the cuts and gullies in the soft clay hills, but in few, if in any places, will this preclude logging operations.

In addition to this area southwest of the lake, fair forests border the east and north sides which would furnish Malugay (*Pometia pinnata*), Narra (*Pterocarpus indicus*), and other merchantable trees.

Logs may be rafted across the lake and down the river to the sea, which is within fourteen hours by steamer from Manila. Or, should it be desirable to avoid rafting over the lower half of this river, which is shallow during the dry season, and if it is also desired to avoid the danger and uncertainty of loading upon an open beach, a logging railroad could be constructed without much cost, to the pier at Calapan, distant about 13 miles, where loading would be comparatively easy.

The following table shows prices per thousand feet B. M. and commercial names of timber tributary to Lake Naujan.

Almon (Alam) .....	₱70-₱90
White Lauan .....	70- 90
Tanguile, or Balacbacan .....	95-120
Apitong .....	85-100
Malugay .....	95-130
Narra .....	225-300
Baticulin .....	200-250
Amuguis .....	110-150

In addition to this excellent forest, which has remained almost untouched because of its distance from market, a stand of at least 14,000 feet B. M. per acre is found covering about 25 square miles in the vicinity of Balete, farther down the coast to the east and close to the forest above mentioned.

## REPORT OF AN EXAMINATION OF PINE LANDS, TRIBUTARY TO BAGUIO, PROVINCE OF BENGUET,

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By H. M. CURRAN, *Forester.*

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The object of this examination was to determine the amount of timber near Baguio; to locate bodies of timber suitable for commercial exploitation; to make a detailed examination of one such tract and to outline a plan for the protection of the region from forest fires. As a result of this examination, sketch maps of Baguio and vicinity have been prepared, showing roughly the forest, cultivated, and grass areas.

Four tracts of commercial forests were located, covering a total area of 3,556 acres.

The principal tree of this region is pine (*P. insularis*) and occurs in practically pure stands. This pine closely resembles Western Yellow Pine (*P. ponderosa*). The region occupied by this tree is broken and hilly and the prominent features of its topography are long, narrow, connecting ridges, with many short lateral spurs. The crests of the ridges are 200 to 500 feet above the water courses. The slopes are steep; 30° to 40° slopes being not uncommon.

The whole region has been constantly swept by grass fires, and the resulting stand is thin and open. The trees are short boled and knotty, excepting where small patches have been protected from fire by the topography. Here the trees are often straight, clear boled, with gradually tapering stems and small crowns. Coarse grasses and ferns cover the ground over the greater part of the area. Patches of reproduction are found where fires have been less frequent and severe.

The trees apparently bear large crops of fertile seed each year, and but for the fires, an excellent reproduction, like that of Loblolly Pine (*P. taeda*), would be present over the whole area. The tree is a rapid grower, nodes 1 to 2 feet long are noted, and the rings of growth are often very wide. Merchantable timber can probably be grown in thirty to forty years from seed. A sample tree in a dense, even-aged stand on a favorable site had a diameter of 14 inches at breast height, and showed forty periods of growth. Its clear length was 60 feet. The live crown began at 74 feet and the total height of the tree was 108 feet.

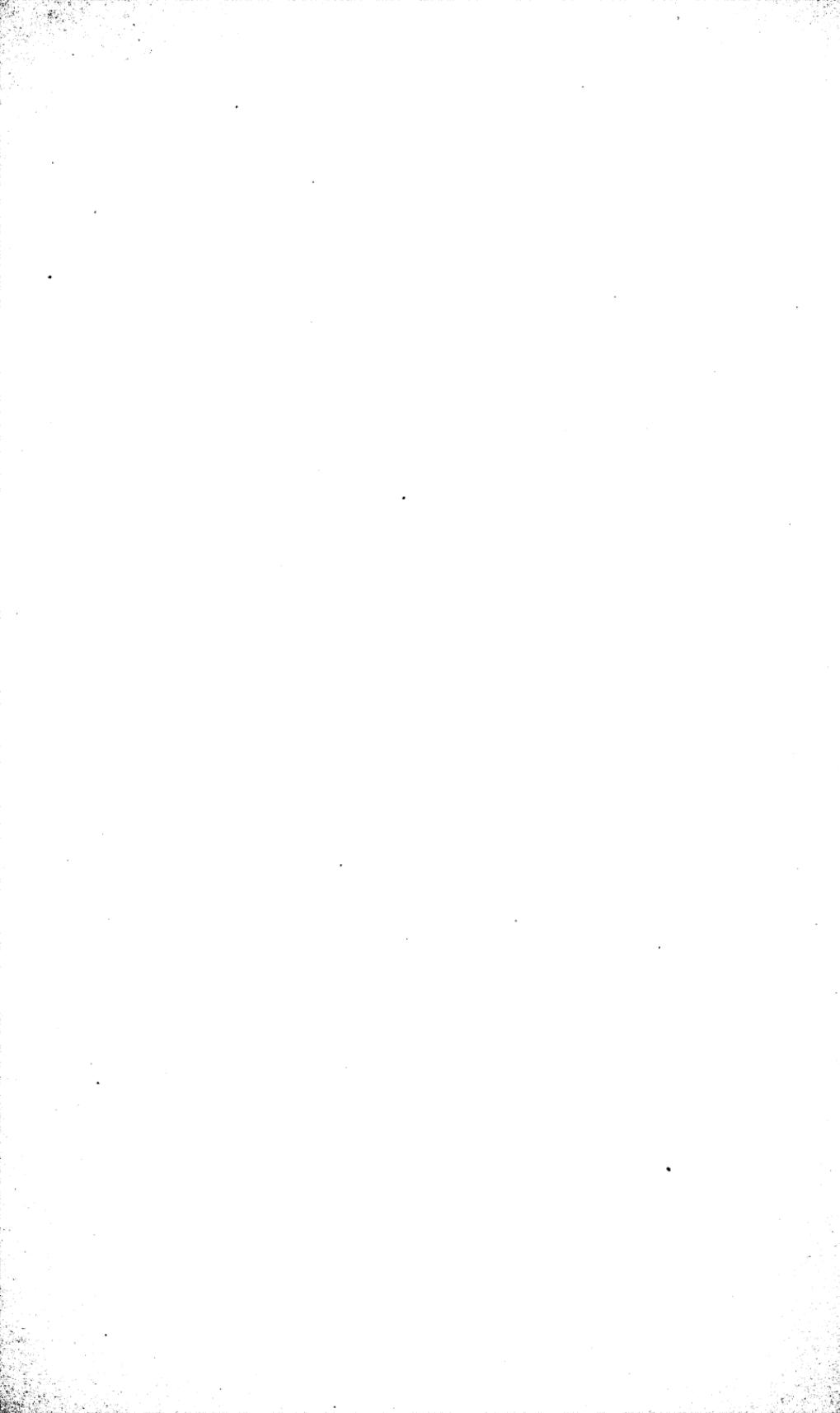
A detailed examination of 963 acres of commercial forest was made. All the trees on 70 acres were measured and taper analyses made of twenty felled trees. The result of these measurements is as follows:

Average number of trees per acre over 10 inches in diameter breast high .....	13
Average diameter ..... inches....	21
Average board contents 21-inch tree ..... feet....	550
Average stand per acre ..... do.....	7,150
Approximately 32 per cent of the stand was marked for cutting giving an average cut per acre of, approxi- mately ..... feet....	2,300
On this basis the cut for the 963 acres of forest examined would be ..... feet....	2,224,900
And for the entire region of 3,556 acres..... do.....	8,178,800











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